ALGE-TIMING

Version-E101025

ASC2

Manual

Important Information

General

Before using your ALGE-TIMING device read the complete manual carefully. It is part of the device and contains important information about installation, safety and its intended use. This manual cannot cover all conceivable applications. For further information or in case of problems that are mentioned not at all or not sufficiently detailed, please contact your ALGE-TIMING representative. You can find contact details on our homepage www.alge-timing.com

Safety

Apart from the information of this manual all general safety and accident prevention regulations of the legislator must be taken into account.
The device must only be used by trained persons. The setting-up and installation must only be executed according to the manufacturer's data.

Intended Use

The device must only be used for its intended applications. Technical modifications and any misuse are prohibited because of the risks involved! ALGE-TIMING is not liable for damages that are caused by improper use or incorrect operation.

Power supply

The stated voltage on the type plate must correspond to voltage of the power source. Check all connections and plugs before usage. Damaged connection wires must be replaced immediately by an authorized electrician. The device must only be connected to an electric supply that has been installed by an electrician according to IEC 60364-1. Never touch the mains plug with wet hands! Never touch live parts!

Cleaning

Please clean the outside of the device only with a smooth cloth. Detergents can cause damage. Never submerge in water, never open or clean with wet cloth. The cleaning must not be carried out by hose or high-pressure (risk of short circuits or other damage).

Liability Limitations

All technical information, data and information for installation and operation correspond to the latest status at time of printing and are made in all conscience considering our past experience and knowledge. Information, pictures and description do not entitle to base any claims. The manufacturer is not liable for damage due to failure to observe the manual, improper use, incorrect repairs, technical modifications, use of unauthorized spare parts. Translations are made in all conscience. We assume no liability for translation mistakes, even if the translation is carried out by us or on our behalf.

Disposal

If a label is placed on the device showing a crossed out dustbin on wheels (see drawing), the European directive 2002/96/EG applies for this device.
Please get informed about the applicable regulations for separate collection of electrical and electronical waste in your country and do not dispose of the old devices as household waste. Correct disposal of old equipment protects the environment and humans against negative consequences!

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Table of Contents

1 General 5
1.1 Connections and Devices 6
1.1.1 Green Push-Button (1) 6
1.1.2 Black Push-Button (2) 6
1.1.3 Start Input (3) - Green-Black Banana Socket 6
1.1.4 Contact for Countdown Interval Setting (4) 6
1.1.5 Start Output (6) 6
1.1.6 ON-OFF Switch (13) 6
1.1.7 POWER-LED (11) 6
1.2 Power Supply (8+12) 6
1.3 Display 7
1.3.1 Time of Day (E) 7
1.3.2 Countdown Time (D) 7
1.4 Start Light (A+B+C) 7
1.5 Horn (10+7) 7
1.6 Mounting of the Startclock 7

2 Operation 7
2.1 Parameters 7
2.2 Starting up the Startclock 8
2.2.1 Memory 8
2.2.2 Scanning GPS device 8
2.2.3 Setting Time of Day 8
2.2.4 Setting the Program 9
2.2.5 Select the Countdown Interval 9
2.2.6 Select the Brightness of the LED <brIgHt> 10
2.3 Programs 11
2.3.1 Program P01 12
2.3.2 Program P02 13
2.3.3 Program P03 14
2.3.4 Program P04 15
2.3.5 Program P05 16
2.3.6 Program P60 17
2.3.7 Program P61 18
2.3.8 Program P62 19
2.3.9 Program P07 20
2.3.10 Program P08 21
2.3.11 Program P00 22

3 Parameter setting 23
3.1 Parameter Setting in the Startclock 23
3.1.1 Display the Start Times <dISStt> 23
3.1.2 Print the Memory <PrInt> 24
3.1.3 Select the Program <ProgrA> 24
3.1.4 Delete the Memory <StorE> 24
3.1.5 Set the Countdown Time <Cd#> 25
3.1.6 Set the Start Light <LIGHt> 26
3.1.7 Set the Tone of the Speaker <tOnE> 27
3.1.8 Factory Settings <SEtUP> 28
3.2 Parameter setting by PC 28

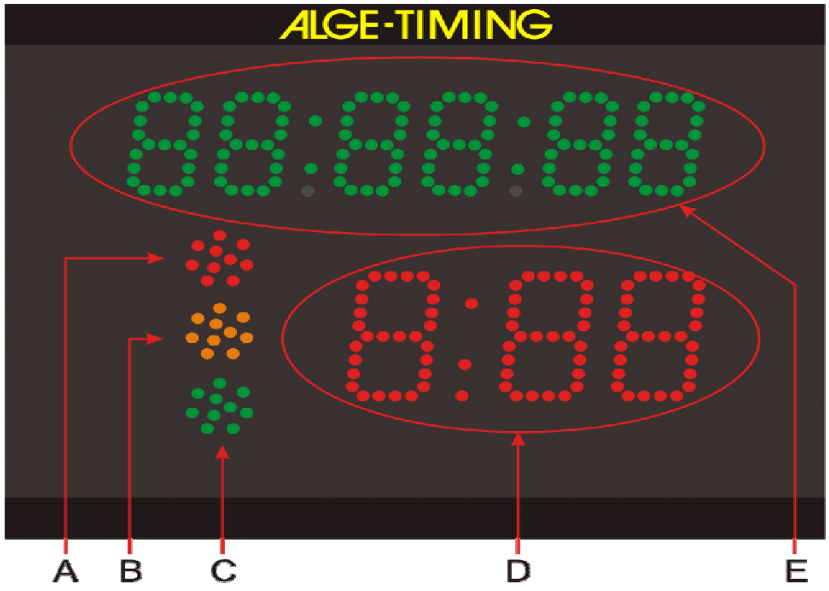
4 RS 232 Interface 28
4.1 GPS-Receiver 29
4.2 Commands for reading data from device: 30
4.2.1 Read memory: 30
4.2.2 Clear memory: 30
4.2.3 Get current values on-line: 30
4.2.4 Get current values: 30
4.3 Commands for setting data: 31
4.3.1 SET PROGRAM 31

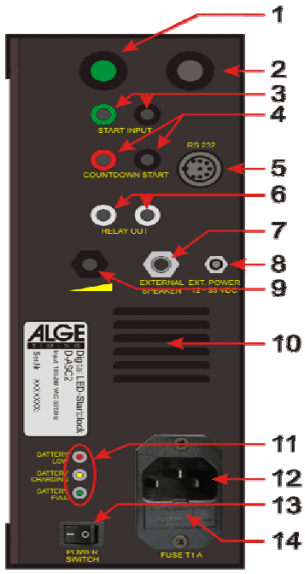
4.3.2 SET COUNTDOWN TIME 31
4.3.3 SET CLOCK TIME 31
4.3.4 SET START LIGHT 31
4.3.5 SET DISPLAY 31
4.3.6 GOTO SLAVE MODE 31
4.3.7 GOTO MASTER MODE 31
4.3.8 SET BRIGHTNESS 31

5 Technical Data 32

1 General

The startclock ASC2 is a device for sports with individual start and fixed countdown time. It helps the athletes and starters to organize the start procedure. There are several programs available to cover different sports. Each program has 9 different start interval times. An acoustic countdown, a start light and a visible countdown will help you to organize the start procedure.





A..... Red start light
B..... Yellow start light
C..... Green start light
D..... Countdown clock with adjustable start intervals
E..... Time of day clock with hours, minutes and seconds

1 ..... Green push-button
2 ..... Black push-button
3 ..... Start input (e.g. startgate for skiing) with green and black banana socket
4 ..... Connector for push-button for start interval setting
5 ..... RS232 interface
6 ..... Start output with banana sockets
7 ..... Socket to connect an external speaker
8 ..... External 12V power connection (12 – 15 VDC)
9 ..... Volume for speaker
10 ..... Horn for internal countdown speaker
11 ..... Battery condition and charging LEDs
12 ..... Mains connector to recharge internal battery of built in power pack (100-240VAC)
13 ..... On / Off – switch
14 ..... Fuse 1.0 A for power supply

1.1 Connections and Devices

1.1.1 Green Push-Button (1)

The green push-button (1) is a manual start button. If you press this button it triggers a start impulse (same as getting a start impulse from start input (3)). Furthermore, the green push-button is used for settings. You can change the blinking parameters.

1.1.2 Black Push-Button (2)

The black push-button (2) is to select the countdown time. If you press the black push-button during the standard operation it allows you to change the interval time. Furthermore, the black push-button is used to confirm parameters and move to other parameters.

1.1.3 Start Input (3) - Green-Black Banana Socket

At this input channel you can connect a start device (e.g. startgate or photocell). It stores the start time and the led/leg time for the start. This time you can show on the time of day display, print on a printer or send to a PC by RS232.
Furthermore, this input channel is used to effect the synchronous start with another device. It receives an external impulse for synchronization or, if you press the green push-button for synchronization, it also outputs an impulse via this socket to another device.

1.1.4 Contact for Countdown Interval Setting (4)

At this red and black banana socket (4), you can connect a push-button. With this push-button you can change the countdown interval. If you use the manual countdown, this push-button starts the manual countdown.
Countdown Interval Setting:

- Press the push-button for 3 seconds - the time of day disappears from display (E).
- Cd# (# = number from 0 to 9) is shown. The number is blinking.
- In the countdown display (D) the set countdown time is shown.
- Press the push-button (short) to change the selected countdown time.
- To confirm the new countdown time, press the push-button for 3 seconds and the start-clock will go back to countdown mode with the new start interval.

1.1.5 Start Output (6)

This connection sends an output impulse at the zero signal of the start interval. This impulse can be used e.g. to start another timing device (start impulse).

1.1.6 ON-OFF Switch (13)

It switches the startclock on or off.

1.1.7 POWER-LED (11)

The power LEDs are red, yellow and green. The LEDs show the following status

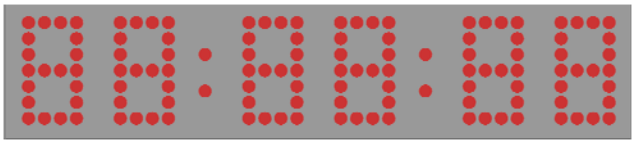
- Green ..... battery full
- Yellow ..... charging(extern supply is connected)
- Red ..... low battery, device will switch off soon

1.2 Power Supply (8+12)

The power supply is built into the startclock. It has an input for 100-240V AC or 12 – 15 VDC. The start clock has an internal battery. Connected to the mains the battery loads.
Working Time: approximately for 8 hours at 20°C or 5 hours at –20°C
Charging Time: about 20 hours with empty battery

1.3 Display

1.3.1 Time of Day (E)

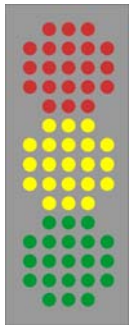


- Figure height is 55 mm
- 6 green LED numbers, separated by a colon
- The display shows hours, minutes, and seconds (2 digits for seconds)

1.3.2 Countdown Time (D)

- Figure height is 80 mm
- 3 red LED numbers, separated by a colon
- 3 digits for countdown

1.4 Start Light (A+B+C)



The start light has red (A), yellow (B), and green (C) LED clusters. The start light looks like a traffic light.

1.5 Horn (10+7)

The horn is used to release an acoustic signal of the countdown. This countdown normally lasts for the final 5 seconds. If the countdown takes longer than 10 seconds a warning tone can be released at 10 seconds. There are two frequencies for the countdown. The lower frequency is for warnings and the higher frequency for the start signal. Alternatively, it is possible to connect an external horn at socket (7).

1.6 Mounting of the Startclock

The startclock has two possibilities for mounting:

- 3/8 inch screw for tripod in the centre of bottom side
- Two straps to hang it at a wall

2 Operation

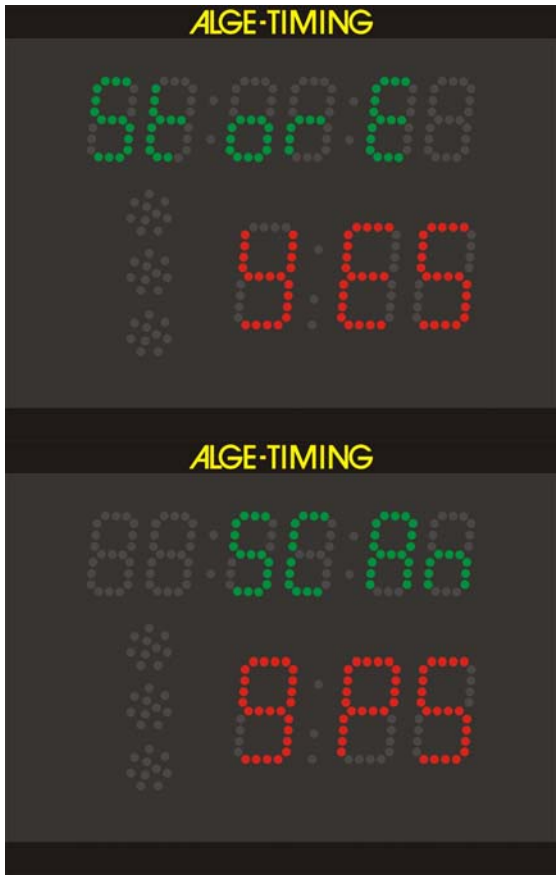
2.1 Parameters

diSStt ..... display start times and led/leg-times
PrInt ..... print memory
StorE ..... select if you want to clear the memory
PrOGrA ..... select the program (from 00 to 99)
LIgHt ..... start light adjustment
Horn## ..... speaker tone (# = Lo for low tone or Hi for high tone)
SEtUP ..... to clear the adjusted setup and reset to the standard parameters
gPS ..... when using GPS - offset of GMT (Greenwich mean time)

2.2 Starting up the Startclock

Switch the startclock on with the On/Off-Switch (12).

2.2.1 Memory



After the startclock is switched on you have the possibility to clear the memory.

- It shows <StorE> in the time of day display (E) and <YES> in the countdown display (D).
- With the green push-button (1) you switch between <YES> and <nO>
  - YES save memory
  - nO clear memory
- With the black push-button (2) you confirm the selection to clear or save the memory.

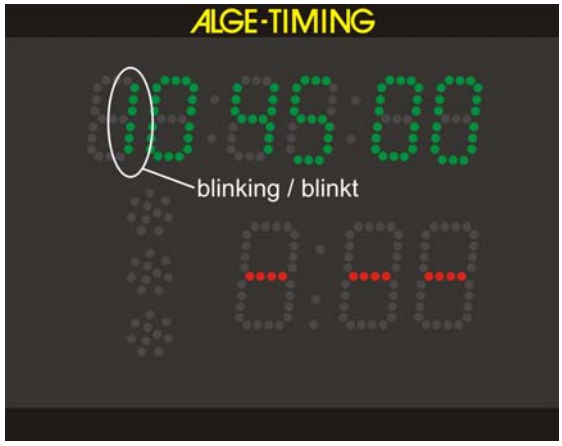
2.2.2 Scanning GPS device

After the memory is cleared or saved, the message <SCAn gPS> is shown. Next 10 secs ASC2 scans the serial port to receive time of day from GPS device. The baud rate is 9600. If GPS device is connected, the ASC2 waits as long as it needs to receive proper time packet from GPS. After the time is received the ASC2 is ready to select the program.

To stop the GPS scanning press the black button (2). Now you can set the time of day manually.

Attention: If the wrong time of day is shown (e.g. 2 hours late), you have to adjust the offset to the GMT (Greenwich mean time). This is done in the parameter setup <gPS>.

2.2.3 Setting Time of Day



When not finding any GPS the ASC2 switches to the manual setup for time of day. It shows the time of day in hours, minutes and seconds. The first digit blinks. Now you can set the time of day (see below).

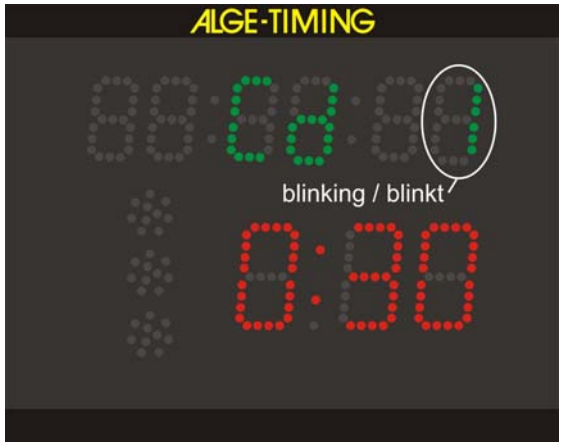
- You can set the time of day only after you switch the startclock on.
- When the startclock is switched on it first scans for a GPS receiver and if it does not find any it shows the time of day after 10 seconds.
- The hours are blinking.
- With the green push-button (1) you can set the hours (0 to 23 hours).
- With the black push-button (2), you can switch from hours to minutes.
- With the green push-button (1), you can set the minutes (0 to 59 minutes).
- With the black push-button (2), you can switch from minutes to seconds.
- With the green push-button (1), you can set the seconds (0 to 59 seconds).
- With the black push-button (2), you can switch back to hours, etc.

- If you keep the black push-button (2) pressed for about 3 seconds, the time of day is set and ready for synchronization. In the countdown clock field SnC is shown.
- You synchronise with an impulse on the start input banana sockets (3) or by pressing the green push-button (1).
- When the time of day is started you can set the program you want to use.

2.2.4 Setting the Program

- After the synchronization, the time of day display (E) shows the running time of day for five seconds.
- After five seconds the time of day disappears and <ProgrA> is shown in the time of day display (E).
- The countdown display (D) shows the last used program number (0 to 5).
- With the green push-button (1) you can select the program number.
- With the black push-button (2) you can confirm the selected program number.
- The startclock is now running in the selected program with the corresponding countdown interval 1.

2.2.5 Select the Countdown Interval



As soon as the program is selected, you can change the countdown time at any time. When changing the countdown time the new countdown time is calculated. Zero point for the new countdown is always the zero tone of the last finished countdown.

If you select the countdown interval and do not change the interval time, the active countdown continues without showing in the display. The previous countdown only stops, when you select a new countdown.

The countdown interval can be selected in two different ways:

a) Internal Black Push-button (2):

- Press the black push-button (2) and Cd# (# = number from 0 to 9) is shown in display (E). The number is blinking.
- In display (D) the set countdown time is shown.
- With the green push-button (1) you can select between 9 different pre-programmed countdown times.
- When the desired countdown time is shown in display (D) confirm with the black push-button (2).
- Display (E) shows the time of day and display (D) the countdown time. Zero of the new countdown time is the last finished zero time.

b) External push-button connected at red and black banana socket (4):

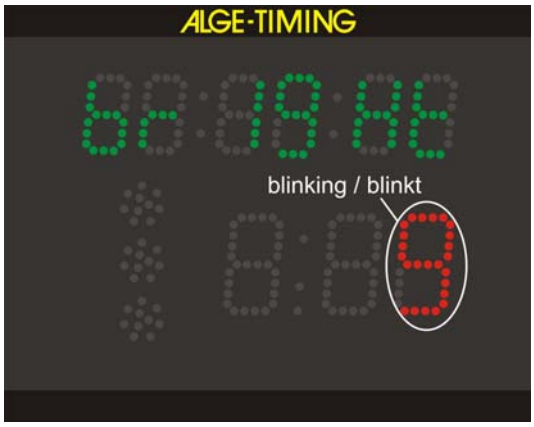
- Press the push-button for 3 seconds until display (E) shows Cd# (# = number from 0 to 9). The number is blinking.
- Display (D) shows the set countdown time.
- Press the push-button for changing the selected countdown time. You can select between 9 pre-programmed countdown times.
- When display (D) shows the countdown time you want to set do not press the push-button. After 3 seconds it is saved automatically.
- Time of day and running countdown are displayed. Zero of the new countdown time is the last finished zero time.

c) Manual Countdown:

- If you select the manual countdown (e.g. program 06 and 00) you need an external push-button to start each countdown as shown in the picture on the right.

2.2.6 Select the Brightness of the LED <brIgHt>

The startclock has 10 brightness levels for the LED. During breaks (e.g. between two runs for Alpine Skiing) you should save battery power by setting level off.



off.... LED off (power saving)
0..... LED lowest level
5..... LED medium level
9..... LED highest level

If you select level off (power saving), the startclock does not show anything on the front face and also stops the acoustic output (sound off).

As soon as you press the internal black push button (2) or the external push-button connected at banana socket (4) it returns to the previously set brightness mode.

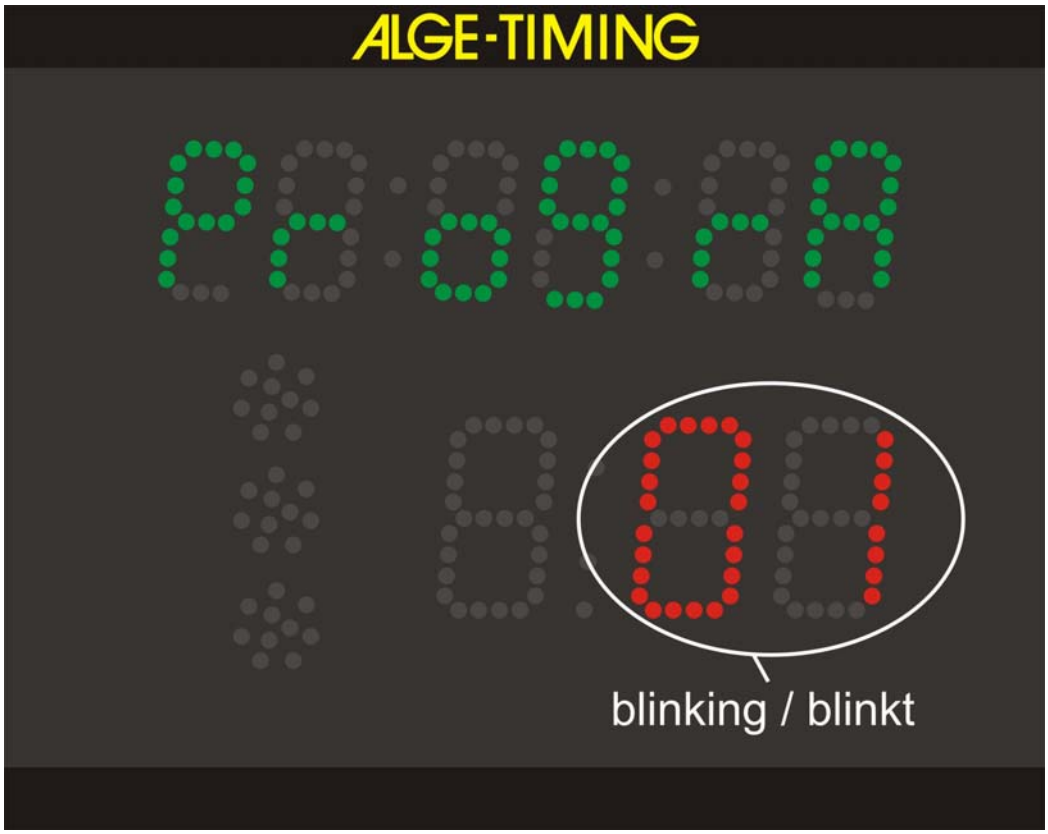
a) Internal push-buttons:

- Press the black push-button (2) for six seconds until the display (E)
- shows <brIGHT>.
- Set the brightness with the green push-button (1).
- Confirm the selected brightness with the black push-button (2).

b) External push-button connected at red and black banana socket (4):

- Press the push-button for six seconds until display (E)
- shows <brigHT>.
- Set the brightness by pushing the button.
- Confirm the selected brightness by pressing the button until
- display (E) shows the time of day.

2.3 Programs



There are several programs available:

Program 1..... 01.... automatic countdown – Alpine Skiing – min. 30 sec. interval
Program 2..... 02.... automatic countdown – Cross Country Skiing – min. 30 sec. interval
Program 3..... 03.... automatic countdown – Car Racing
Program 4..... 04.... automatic countdown – Rallye
Program 5..... 05.... automatic countdown – Individual start with short countdown times
Program 60.... 61.... manual countdown – countdown reset possible
Program 61.... 61.... manual countdown – countdown timeout possible
Program 62.... 62.... manual countdown – countdown stopping possible
Program 7..... 07.... automatic countdown – Alpine Skiing – min 15 sec. interval
Program 8..... 08.... automatic countdown – Cross Country Skiing – min. 15 sec. interval
Program 0..... 00.... manual horn

2.3.1 Program P01

The countdown starts to automatically count a new interval after the zero tone. The allowed start time is 5 seconds before or after the zero tone.

Sports: Alpine Skiing
Green/Black Banana Socket (3): start input by external start trigger device (e.g. startgate, photocell)
Red/Black Banana Socket (4): to connect a push-button for set countdown time
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:
CD1 = 0:30 min
CD2 = 0:40 min
CD3 = 0:45 min
CD4 = 1:00 min
CD5 = 1:15 min
CD6 = 1:30 min
CD7 = 1:40 min
CD8 = 2:00 min
CD9 = 2:30
CD0 = Break

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Green	low
4	4	Green	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Red	off
-6	-6	Red	off
-7	-7	Red	off
-8	-8	Red	off
-9	-9	Red	off
-10	-10	Red	off

2.3.2 Program P02

The countdown starts to automatically count a new interval after the zero tone. The allowed start time is 3 seconds before or after the zero tone.

Sports: Nordic Skiing – Cross Country
Green/Black Banana Socket (3): start input by external start trigger device (e.g. startgate, photocell)
Red/Black Banana Socket (4): to connect a push-button for setting countdown time
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:
CD1 = 0:30 min
CD2 = 0:40 min
CD3 = 0:45 min
CD4 = 1:00 min
CD5 = 1:15 min
CD6 = 1:30 min
CD7 = 1:40 min
CD8 = 2:00 min
CD9 = 2:30
CD0 = Break

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Red	off
-4	-4	Red	off
-5	-5	Red	off
-6	-6	Red	off
-7	-7	Red	off
-8	-8	Red	off
-9	-9	Red	off
-10	-10	Red	off

2.3.3 Program P03

The countdown starts to automatically count a new interval after the zero tone. The start light switches to green when the countdown reaches zero.

Sports: Car Racing
Green/Black Banana Socket (3): start input by external start trigger device (e.g. startgate, photocell)
Red/Black Banana Socket (4): to connect a push-button for setting countdown time
White Banana Socket (6): Output of start impulse (zero impulse)
Countdown Intervals: CD1 = 0:30 min
CD2 = 0:40 min
CD3 = 0:45 min
CD4 = 1:00 min
CD5 = 1:15 min
CD6 = 1:30 min
CD7 = 1:40 min
CD8 = 2:00 min
CD9 = 2:30
CD0 = Break

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.4 Program P04

The countdown starts to automatically count a new interval after the zero tone. The start light switches to green when the countdown reaches zero. The countdown counts as far as – 20 seconds.

Sports: Rallye
Green/Black Banana Socket (3): start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4): to connect a push-button for setting countdown time
White Banana Socket (6): Output of start impulse (zero impulse)
Countdown Intervals: CD1 = 0:30 min
CD2 = 0:40 min
CD3 = 0:45 min
CD4 = 0:50 min
CD5 = 1:00 min
CD6 = 1:15 min
CD7 = 1:30 min
CD8 = 1:45 min
CD9 = 2:00 min
CD0 = Break

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Yellow	low
4	4	Yellow	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Green	off
-11	-11	Green	off
-12	-12	Green	off
-13	-13	Green	off
-14	-14	Green	off
-15	-15	Green	off
-16	-16	Green	off
-17	-17	Green	off
-18	-18	Green	off
-19	-19	Green	off
-20	-20	Red	off

2.3.5 Program P05

This is a simple repeatable countdown program that shows red before the zero tone and green for two seconds after the zero tone. The minimum countdown time is 3 seconds.

Sports: Individual start with short countdown times
Green/Black Banana Socket (3): start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4): to connect a push-button for setting countdown time
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:

CD1 = 0:05 min	CD6 = 0:40 min
CD2 = 0:10 min	CD7 = 0:45 min
CD3 = 0:15 min	CD8 = 1:00 min
CD4 = 0:20 min	CD9 = 1:30 min
CD5 = 0:30 min	CD0 = Break

Intervals of 3 and 6 seconds:

Countdown	Display (D)	Start Light	Horn
3	3	Red	off
2	2	Red	off
1	1	Red	off
0	0	Green	high
next interval	next interval	Green	off

Intervals between 7 and 11 seconds:

Countdown	Display (D)	Start Light	Horn
5	5	Red	low
4	4	Red	low
3	3	Red	low
2	2	Red	low
1	1	Red	low
0	0	Green	high
next interval	next interval	Green	off

Intervals over 12 seconds:

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Red	low
2	2	Red	low
1	1	Red	low
0	0	Green	high
next interval	next interval	Green	off

2.3.6 Program P60

The countdown starts to count down from an adjustable interval time after pressing the push-button (externally connected to red/black banana socket (4)). The start light switches to green when the countdown reaches zero. After the countdown is at -10 no light and no countdown time is displayed (only time of day).
If you press during the countdown the external push-button again it will reset the countdown.

Sports: Mass Start with Countdown for any Sport
Green/Black Banana Socket (3): start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4): to connect push-button for activating start
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:

CD1 = 0:10 min	CD6 = 0:40 min
CD2 = 0:15 min	CD7 = 0:45 min
CD3 = 0:20 min	CD8 = 1:00 min
CD4 = 0:25 min	CD9 = 1:30 min
CD5 = 0:30 min	CD0 = Break

Countdown	Display	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.7 Program P61

The countdown starts to count down from an adjustable interval time after pressing the push-button (externally connected to red/black banana socket (4)). The start light switches to green when the countdown reaches zero. After the countdown is at -10 no light and no countdown time is displayed (only time of day).
If you press during the countdown the external push button again it stops the countdown (timeout). Push the button again and the countdown will continue.

Sports: Mass Start with Countdown for any Sport
Green/Black Banana Socket (3): start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4): to connect push-button for activating start
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:

CD1 = 0:10 min	CD6 = 0:40 min
CD2 = 0:15 min	CD7 = 0:45 min
CD3 = 0:20 min	CD8 = 1:00 min
CD4 = 0:25 min	CD9 = 1:30 min
CD5 = 0:30 min	CD0 = Break

Countdown	Display	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.8 Program P62

The countdown starts to count down from an adjustable interval time after pressing the push-button (externally connected to red/black banana socket (4)). The start light switches to green when the countdown reaches zero. After the countdown is at -10 no light and no countdown time is displayed (only time of day).
If you press during the countdown the external push button again it stops the countdown and shows the time of day only. If you press the external push button again it starts a new count-down.

Sports: Mass Start with Countdown for any Sport
Green/Black Banana Socket (3): start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4): to connect push-button for activating start
White Banana Socket (6): output of start impulse (zero impulse)
Countdown Intervals:

CD1 = 0:10 min	CD6 = 0:40 min
CD2 = 0:15 min	CD7 = 0:45 min
CD3 = 0:20 min	CD8 = 1:00 min
CD4 = 0:25 min	CD9 = 1:30 min
CD5 = 0:30 min	CD0 = Break

Countdown	Display	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Yellow	low
2	2	Yellow	low
1	1	Yellow	low
0	0	Green	high
-1	-1	Green	off
-2	-2	Green	off
-3	-3	Green	off
-4	-4	Green	off
-5	-5	Green	off
-6	-6	Green	off
-7	-7	Green	off
-8	-8	Green	off
-9	-9	Green	off
-10	-10	Red	off

2.3.9 Program P07

The countdown starts to automatically count a new interval after the zero tone. The allowed start time is 5 seconds before or after the zero tone.

In this program you can set the start light and the horn from 10 seconds to – 5 seconds (altogether 15 seconds). This allows shorter start intervals (shortest interval time is 15 sec.)

Sports:	Alpine Skiing
Green/Black Banana Socket (3):	start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4):	to connect a push-button for setting countdown time
White Banana Socket (6):	output of start impulse (zero impulse)
Countdown Intervals:	CD1 = 0:15 min CD2 = 0:20 min CD3 = 0:30 min CD4 = 0:40 min CD5 = 0:45 min CD6 = 1:00 min CD7 = 1:15 min CD8 =:1:20 min CD9 = 1:30 min CD0 = Break

The table below shows the ASC2 at a 15 second interval:

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Green	low
4	4	Green	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	14	Green	off
-2	13	Green	off
-3	12	Green	off
-4	11	Green	off
-5	10	Red	off

2.3.10 Program P08

The countdown starts to automatically count a new interval after the zero tone. The allowed start time is 3 seconds before or after the zero tone.

In this program you can set the start light and the horn from 10 seconds to – 5 seconds (altogether 15 seconds). This allows shorter start intervals (shortest interval time is 15 sec.)

Sports:	Nordic Skiing – Cross Country
Green/Black Banana Socket (3):	start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4):	to connect a push-button for setting countdown time
White Banana Socket (6):	output of start impulse (zero impulse)
Countdown Intervals:	CD1 = 0:15 min CD2 = 0:20 min CD3 = 0:30 min CD4 = 0:40 min CD5 = 0:45 min CD6 = 1:00 min CD7 = 1:15 min CD8 =:1:20 min CD9 = 1:30 min CD0 = Break

The table below shows the ASC2 at a 15 second interval:

Countdown	Display (D)	Start Light	Horn
10	10	Red	low
9	9	Red	off
8	8	Red	off
7	7	Red	off
6	6	Red	off
5	5	Red	low
4	4	Red	low
3	3	Green	low
2	2	Green	low
1	1	Green	low
0	0	Green	high
-1	14	Green	off
-2	13	Green	off
-3	12	Red	off
-4	11	Red	off
-5	10	Red	off

2.3.11 Program P00

The countdown starts showing the time of day, start light red. When you press the push-button (externally connected to red/black banana socket (4)), it switches to green for 5 seconds and a high tone sounds (for one second).

Sports:	Mass Start for any Sport
Green/Black Banana Socket (3):	start input from external start trigger device (e.g. start-gate, photocell)
Red/Black Banana Socket (4):	to connect push-button for activating start
Countdown Intervals:	manual mode

Push Button	Display	Start Light	Horn
off	---	Red	off
on	GO	Green	high
off	GO	Green	off
off	GO	Green	off
off	GO	Green	off
off	GO	Green	off
off	---	Red	off

3 Parameter setting

To set the parameters you have two possibilities:

- Parameter setting in the startclock
- Parameter setting from a PC

3.1 Parameter Setting in the Startclock

To enter the parameter setting menu press black push-button (2) for about 9 seconds until the time of day display (E) shows <dISSTF>.
With green push-button (1) you can choose the parameter you want to change. Confirm with black button (2). With green push-button (1) you can change the parameter. With black button (2) the change is confirmed.
With green button (1) you can proceed to another parameter. If no button is pressed for the next 3 seconds you automatically exit the parameter mode.

dISStt ..... display start time of first competitor
PrInt ..... print memory
PrOGrA ..... select the program (from 00 to 99)
StOrE ..... select if you want to clear the memory
Cd# ..... countdown time #
LIGHt ..... start light adjustment
tOnE# ..... speaker tone (# = L for low tone or H for high tone)
SEtUP ..... to reset all parameters to standard (company setup)

3.1.1 Display the Start Times <dISStt>

The display (E) shows blinking <dISStt> (**Dis**play **St**art **T**ime).

- Press the green push-button (1) and display (E) shows the start time of the previous competitor
- On display (D) you see the lead/leg time.
- If the start light is yellow, the start was after the zero impulse.
- If the start light shows green, the start tolerance was okay.
- If the start light shows red, the start was outside the start tolerance
- If you press green button (1) the start time of the starter before is shown, etc.
- If you press green push-button (1) the display shows the start time of the previous competitor.
- Press the black button (2) and the previous time is displayed once again.
- To leave the menu you keep black push-button (2) pressed until display (E) shows blinking < PrInt > again.

If you want the first time to be shown, press the black push-button (2) when the display shows the last start number.

3.1.2 Print the Memory <PrInt>

Display (E) shows <PrInt> and display (D) shows <oFF>. If you activate the print mode, it outputs the consecutive number, start time and led/leg time for each start.

```
0001 ST  10:00:00.1431
               +0.1431
0002 ST  10:00:59.3844
               -0.6156
0003 ST  10:02:01.3217
               +1.3217
```

- Press green push-button (1) and display (D) shows <onL>. The startclock now prints every zero time, the official start time and the led/leg time online.
- For activating the online mode press the black button (2).
- For deactivating the online mode press the green button (1) again. The display (D) shows <ALL>.
- If you confirm with black button (2), the complete memory is printed.
- On display (D) you see the led/leg time
- If the yellow light shines, the start was carried out after the zero impuls
- If the green light shines, the start tolerance was okay
- If the red light shines, the start was carried out outside the start tolerance
- To exit the printer menu press the balck button (2) until display (E) shows <PrOGrA>

3.1.3 Select the Program <ProgrA>

The display (E) shows <ProgrA> and the display (D) shows the currently selected program number. Here, you can move to another program.

- The countdown display (D) will show the current program number (0 to 5).
- With green push-button (1) you can select the program number.
- With black push-button (2) you can confirm the selected program number.
- The startclock now runs in selected program with countdown interval 1 of this program.

3.1.4 Delete the Memory <StorE>

The display (E) shows <StorE>. Now you can delete the memory.

- It shows <StorE> in the time of day display (E) and in display (D) <YES>.
- With green push-button (1) you switch between <YES> and <nO>
  - YES..... save memory
  - nO ..... clear memory
- With black push-button (2) you confirm the selection to clear or save the memory.

3.1.5 Set the Countdown Time <Cd#>

For each program you have 9 different countdown times (Cd1 to Cd9). Additionally, you have Cd0 that is always the break (no countdown) if the time of day display (E) shows <Cd#>
When you select the menu to set the countdown times, you set the countdown times of the current program.

- **The shortest allowed countdown time is 20 seconds, the longest 9:59 minutes.**
- **You cannot change a countdown in program 5 and 0.**
- **You can never change the set countdown time and the Cd0 (manual countdown time or break).**

- The display (E) shows <Cd#> (# = number of 0 to 9) and the countdown display (D) shows the set countdown time.
- Press black push-button (2) to select the countdown time that you change.
- Now, the first digit of the countdown times blinks.
- Press green push-button (1) to change the digit.
- Press black push-button (2) to move to the next digit.
- Press green push-button (1) to change the digit.
- Press black push-button (2) to move to the last digit.
- Press green push-button (1) to change the digit.
- Press black push-button (2) to move to the first digit, etc.
- To exit the selected countdown press black push-button (2) until display (E) shows again <Cd#>. No digit blinks any more.
- To exit the countdown menu press black push-button (2) until display (E) shows <LIGth>.

3.1.6 Set the Start Light <LIGHt>

The start light has three colors – red, yellow and green. You can set the start light for a certain time. In case the selected times are beyond the time of the start interval, the countdown of the start interval shows the current color of light. The set values always apply to all countdowns in this program (except Cd0). Display (E) shows <LigHt> (light) and display (D) shows the selected time. The start light shows the set color for this time.
Display (E) shows <LigHt> and the countdown dipslay (D) the time. The start light shows red, yellow, green or all colors (light is switched off). When pressing the black button (2) the light blinks.

- Press green button (1) to change the light color
- Press black button (2) to save the light color and to move to time.
- The first digit of the time blinks (display D)
- Press green push-button to set first digit of the time
- Press black push-button (2) to move to second digit
- Press green push-button (1) to set this digit
- Press black push-button (2) to move to last digit
- Press green button to set this digit
- Press black button to move to next start light position etc.
- To exit the start light menu press black button (2) until display (E) show <tOnE#>

Example:

Start Light = red Countdown Time = 10
Start Light = yellow Countdown Time = 5
Start Light = green Countdown Time = 3
Start Light = red Countdown Time = -3
Start Light = black Countdown Time =-10

Countdown	Display	Traffic Light
11	11	no
10	10	Red
9	9	Red
8	8	Red
7	7	Red
6	6	Red
5	5	Yellow
4	4	Yellow
3	3	Green
2	2	Green
1	1	Green
0	0	Green
-1	-1	Green
-2	-2	Green
-3	-3	Red
-4	-4	Red
-5	-5	Red
-6	-6	Red
-7	-7	Red
-8	-8	Red
-9	-9	Red
-10	-10	Red
-11	-11	no

3.1.7 Set the Tone of the Speaker <tOnE>

The tone of the speaker can be switched off, sound with a high or a low tone. Most sports desire a pre-warning at 10 seconds and a countdown from 5 seconds to 0. The set values always apply for all countdowns in this program (not Cd 0).

- The display (E) shows blinking <tOnE#> (# = L [low] or H [high])
- Press the green button (1) to switch between L and H (low or high signal tone)
- Press black button (2) to confirm moving on to countdown time and saving signal tone
- The first digit of the time blinks (display D)
- Press green button (1) to change first digit of singal tone time
- Press black button (2) to move to second digit
- Press green button (1) to change second digit
- Press black button (2) to move to last digit
- Press green button (1) to change last digit
- Press black button (2) to move to next tone etc.
- To exit the signal tone menu press black button (2) until display (E) show <StOrE>

Example:

Horn Low	Countdown Time = 10
Horn Low	Countdown Time = 5
Horn Low	Countdown Time = 4
Horn Low	Countdown Time = 3
Horn Low	Countdown Time = 2
Horn Low	Countdown Time = 1
Horn High	Countdown Time = 0

Countdown	Horn
10	low
9	off
8	off
7	off
6	off
5	low
4	low
3	low
2	low
1	low
0	high
-1	off
-2	off
-3	off
-4	off
-5	off
-6	off
-7	off
-8	off
-9	off
-10	off

3.1.8 Factory Settings <SEtUP>

It is possible to change many parameters of the ASC2. If you have troubles with the changes you made, we recommend resetting the ASC2 to factory settings. This means all the settings you changed are reset to factory values.

- The display (E) shows blinking <SEtUP> (SETUP).
- Display (D) shows <CUS>. This means customer settings are saved after switching on and off.
- Press black push-button (2) and display (D) blinks.
- Press green push-button (1) and you can change between <CUS> (= customer) and <STA> (= standard).
- If the display shows <STA> and you press black push-button (2), all parameters are reset to the factory values (original setting).

Attention: The startclock automatically keeps the customer values that you set. To reset these values to the factory values you have to proceed as described above.

3.2 Parameter setting by PC

We can offer software to effect the parameter settings by PC. This is much faster and easier. You can download software from our homepage www.alge-timing.com free of charge.

4 RS 232 Interface

The RS232 interface has different functions:

- Remote control connection (e.g. device to control the startclock)
- Output of time difference of all start times: times from start input (3) (green and black banana socket) and lead/leg times
- RS 232 interface to control the startclock from a PC (time of day display, countdown display, horn, start light)
- Connection for the printer P5 to print all times online or offline.

Interface parameter:

- RS 232
- 1 start bit, 8 data bit, 1 stop bit, no parity bit
- 2400 baud rate (for printer 2400)

4.1 GPS-Receiver

The startclock ASC2 always shows the time of day. It is possible to set the time of day manually or automatically by a GPS-receiver (optional). The GPS-receiver is connected at the RS232 interface (5). Using the GPS receiver the ASC2 reaches an accuracy of up to 1/1000 seconds. The time that the GPS-receiver obtains is always the GMT (Greenwich Mean Time). In order to display the correct time of your time zone, you have to set an offset to the GMT time in the parameter setup.

Parameter <gPS>

To set the time of day with a GPS-receiver connect it at the RS232 interface (5) of the ASC2. Position the GPS-receiver in such a way that it has unhindered view to the sky. In order to receive the time the GPS-receiver requires the data of four different satellites. This process may take some minutes.

4.2 Commands for reading data from device:

4.2.1 Read memory:

PC to ASC2: **?MCR**

ACS2 to PC: **M? XXXX ST HH:MM:SS:zht LT –SS.zhtCR**

M? EMPTYCR

XXXX .....start number
ST
HH:MM:SS.zht .....start time
L T
– .....sign
SS.zht.....lead or leg time
EMPTY.....memory is empty

4.2.2 Clear memory:

PC to ASC2: **?ECR**

ACS2 to PC: **E?CR**

4.2.3 Get current values on-line:

PC to ASC2 to start: **?DCR**

PC to ASC2
to stop and send again: **?DCR**

ACS2 to PC: **D? HH:MM:SS m:ss C HCR**

HH .....hours
MM .....minutes
SS .....seconds
m .....current countdown time minutes
ss.....current countdown time seconds
C.....color (Black=0, Red=1, Yellow=2, Green=3)

4.2.4 Get current values:

PC to ASC2: **?SCR one time**

ACS2 to PC: **S? HH:MM:SS m:ss C XX m:ss bCR**

HH .....hours
MM- .....minutes
SS .....seconds
m .....current countdown time minutes
ss.....current countdown time seconds
C.....color (Black=0, Red=1, Yellow=2, Green=3)
XX .....program
m .....CDT minutes
ss.....CDT seconds
b .....brightness

4.3 Commands for setting data:

4.3.1 SET PROGRAM

PC to ASC2: **=PXCR**

X.....program (0-9)

ACS2 to PC: **P=CR**

4.3.2 SET COUNTDOWN TIME

PC to ASC2: **=CSCR**

S.....countdown time (0-9)

ACS2 to PC: **C=CR**

4.3.3 SET CLOCK TIME

PC to ASC2: **=THHMMSS CR**

ACS2 to PC: **T=CR**

4.3.4 SET START LIGHT

PC to ASC2: **=LXSSTHCR**

X.....program (0-9)

SS .....seconds (0-20, 0=-10, 20=10)

T.....color (0-off, 1-red, 2-yellow, 3-green)

H.....sound (0-off, 1-high, 2-low)

ACS2 to PC: **L=CR**

4.3.5 SET DISPLAY

Has effect only if device is in slave mode

PC to ASC2: **=D**HHtpMMtpSSmtpssTH**CR**

HH.....hours

MM.....minutes

SS.....seconds

M.....countdown time minutes

ss .....countdown time seconds

T.....color (0-off, 1-red, 2-yellow, 3-green)

H .....sound (0-off, 1-high, 2-low)

Tp.....two points

ACS2 to PC: **D=CR**

4.3.6 GOTO SLAVE MODE

PC to ASC2: **=SLAVECR**

ACS2 to PC: **S=CR**

4.3.7 GOTO MASTER MODE

PC to ASC2: **=MASTERCR**

ACS2 to PC: **S=CR**

4.3.8 SET BRIGHTNESS

PC to ASC2: **=BXCR**

X .....brightness (0-9)

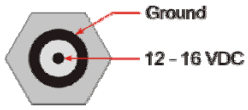
ACS2 to PC: **B=CR**

5 Technical Data

Timing range:	23 hours, 59 minutes, 59,999 seconds
Accuracy:	+/- 0,0002 sec/h at 20°C (68 K)
	+/- 0,009 sec/h at -15 to 50 °C (5 to 122 K)
Precision:	1/1000 seconds
Quartz frequency:	TCXO 32.754 kHz (temperature compensated crystal oscillator)
Time of Day LED-Field:	Six 7-segment LED figures with a figure height of 55 mm, separated after every second figure by three dots
Countdown LED-Field:	Three 7-segment LED figures with a figure height of 80 mm, separated between the first and second figure by three dots
Start Light:	Start light consisting of 3 LED clusters (red, yellow, green)
Extern Speaker:	8 Ohm
Operative temperature range:	-25 to 60°C (-13 to 140 F)
Memory:	about 2000 start times
RS232 Interface:	PC: 2400 Baud, 1 start bit, 8 data bit, 1 stop bit, no parity bit
	Printer: 2400 Baud, 1 start bit, 8 data bit, 1 stop bit, no parity bit

1…TX
2…Ground
3…RX
4…empty
5…empty
6…GPS sync.
7…+12 VDC
8…empty

Battery:	12 VDC, 7.2 Ah
Ext. Power Supply:	AC-Power: 100 – 240 VAC
DC-Power: 12 – 15 VDC	
Case:	Aluminum case for outdoor use
Measurements:	380 x 310 x 110 mm (18.4 x 13.5 x 4.5 in.)
Weight:	6.3 kg (14 lbs.)



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